Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Draft Title V Permit - No. V-98-001
ALCAN ROLLED PRODUCTS COMPANY - RECYCLING
BEREA, KENTUCKY 40403
April 16, 2000
KUMAR POLE, P.E. & THOMAS L. ADAMS, P.E.

A. SOURCE DESCRIPTION:

The Alcan Rolled Products Company - Recycling ('Alcan') is an aluminum recycling facility. The facility has a SIC code of 3341 (Secondary Smelting and Refining of Nonferrous Metals). The facility produces aluminum ingots from recycled used beverage containers (UBC) as well as clean aluminum scrap (Class I, Class II, and Class III), recycled secondary ingots, primary ingots, and either primary or secondary molten aluminum.

This permit is being issued as a combined PSD and Title V permit. Alcan submitted a Title V application on December 16, 1996 when the annual capacity of the facility was 190,000 tons of direct chill cast aluminum ingots. A Title V application submittal was required then because Alcan was major for a single HAP (Hydrogen Chloride PTE > 10 tpy).

On September 23, 1997, Alcan submitted a PSD application requesting an increase in the annual production capacity to 380,900 tons of direct chill cast aluminum ingots. The proposed modification will be a 'major stationary source' by itself and is therefore subject to a PSD review.

Upon completion of the proposed modifications, the facility will be major for carbon monoxide, nitrogen oxides, particulate matter (PM_{10}), a single HAP (HCl) and combined HAPs (HCl, HF).

B. COMMENTS:

1. Type(s) of control and efficiency
   See the BACT discussion below for details.

2. Emission factors and their source
   Air emissions will be generated from material handling, debaling, shredding, decoating, furnace operations, dross cooling operations, and limestone/lime/Tesisorb dust.
   i. The majority of the emissions estimates for process sources have been based on local stack tests performed by Alcan.
   ii. Emissions resulting from the combustion of natural gas have been based on AP-42 emission factors.
   iii. HF emissions have been based on material balances.

B. 3. Applicable regulations

(i) 401 KAR 51:107 (40 CFR 52.21), *Prevention of significant deterioration of air quality*, applies to the following emission points -

Cold Dust Control System (Stack P-1)
Hot Dust Control System (Stack P-2)
DHA Control Systems (Stack P-9a and P-9b)
Melt Furnaces (Stacks C-3, C-4, C-5, C-6)
Hold Furnace#2 (Stack P-8)
Sow Preheaters #1, #2 (Stack C-11a, C-11b)

Regulation 401 KAR 59:010, *New Process Operations*, also applies to each of these emission points. However, the mass emission standards for particulate matter prescribed by 51:017 are more stringent than those under 59:010. Hence, the mass emission standards for particulate matter under 59:010 are superseded by 51:017 for every emission point listed above. The opacity standard under 59:010 continues to apply.

(ii) 401 KAR 59:010, *New process operations*, applies to the following emission points -

Limestone Silo (Stack P-4)
Portable Vacuum (Stack P-5)
Salt Silo (Stack P-6)
Lime Silo (Stack P-7)
Tesisorb Silo (Stack P-8)
Limestone Silo (Stack P-4)

All of these emission points qualify as insignificant activities.

(iii) 401 KAR 63:010, *Fugitive emissions*, applies to the following activities -

Process Fugitives (F-1)
Material Fugitives (F-2)

All of these emissions qualify as insignificant activities.

4. Anything unusual about the:

(i) Emission points (number and description) - No
(ii) Regulations that are not applicable - No

C. PSD REVIEW:

1. Applicability

The Alcan facility (SIC 3341) falls under one of the 28 listed major source categories under PSD and is located in a county classified as 'attainment' or 'unclassifiable' pursuant to Regulation 401 KAR 51:010. The facility is currently not major for any criteria pollutant, i.e., emissions of CO, NOx, PM_{10}, SO_2, and VOC are less than 100 tpy.

The proposed modification will result in a 'net significant change' in emissions of CO and

NOx that will be in excess of 100 tons per year. Furthermore, the 'net significant change' for PM_{10} and VOC will be greater than their corresponding 'significant emission rates' of 15 tpy and 40 tpy respectively [40 CFR 52.21 (b)(23)(i)].

Consequently, the proposed modification meets the definition of 'major stationary source' [40 CFR 52.21 (b)(1)(i)(c)] and is subject to evaluation and review under the provisions of the PSD regulation. A PSD review involves the following six requirements:

i. Demonstration of the application of Best Available Control Technology (BACT).
ii. Demonstration of compliance with each applicable emission limitation under Title 401 KAR Chapters 50 to 63 and each applicable emission standard and standard of performance under 40 CFR 60 and 61.
iii. Air quality impact analysis
iv. Class I area(s) impact analysis
v. Projected growth analysis.
vi. Analysis of the effects on soils, vegetation, and visibility.

This review demonstrates that all regulatory requirements will be met and includes a proposed permit which establishes the enforceability of all applicable requirements.

2. PSD Modifications

The proposed permit will authorize the following proposed modifications which are subject to a PSD review:

i. Increase in the annual production capacity from 190,000 tons to 380,900 tons of direct chill cast aluminum ingots.
ii. Installation of a new debaler, upgraded hot shred conveying system, upgraded bucket elevators, and an additional sow preheater.
iii. The existing Line 2 Decoater emissions will be controlled by use of a new acid gas and particulate control system that is identical to the existing system on Line 1. All HCl and PM_{10} emissions from both decoaters will now be controlled by acid gas and particulate control systems dedicated to each line.

3. PSD Pollutants

The table below lists the 'net significant change' in emissions for all PSD regulated

pollutants.

Pollutant	Emissions after Proposed Modifications (tpy)	Emissions @ Title V or pre-PSD Level (tpy)	Net Change due to Proposed PSD Modifications (tpy)
Criteria Pollutants			
CO	268.87	109.18	159.69
NOx	191.52	87.56	103.96
SO_2	0.61	0.35	0.26
PM_{10}	160.16	77.91	82.25
VOC	94.30	34.54	59.76
Hazardous Air Pollutants			
Hydrogen Chloride	28.90	97.39	-68.49
Hydrogen Fluoride	4.12	1.26	2.86

The annual emissions presented in this table reflect operation of the facility for 8,760 hours per year and were calculated based on maximum hourly emission rates *after controls* (the level of control required was determined through a BACT analysis, see **B**. 3. BACT Review). As seen from the table above, the proposed modification will be subject to a PSD review for CO, NOx, PM_{10} and VOC.

4. BACT Review

Pursuant to State Regulation 401 KAR 51:017, Section 9 (1) and (3), a major stationary source subject to a PSD review shall meet the following requirements,

i. The proposed source shall apply best available control technology (BACT) for each pollutant that it will have the potential to emit in significant amounts.
ii. The proposed source shall meet each applicable emissions limitation under Title 401, KAR Chapters 50 to 63, and each applicable emission standard and standard of performance under 40 CFR 60 and 61.

The proposed source will result in emissions of carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM_{10}) and volatile organic compounds (VOCs) at levels that exceed PSD 'significance emission rates'. Therefore, these pollutants shall be subject to a BACT review. The *uncontrolled* net emissions change for hydrogen chloride (HCl) will be an increase and therefore, HCl is also subject to a BACT review. The uncontrolled emission rate was considered for HCl since the controls for HCl are currently not federally-enforceable.

Alcan has presented in the permit application, a study of the best available control technology for each pollutant and each affected facility in the proposed source. The Division has

reviewed the proposed control technology in conjunction with information available in U.S. EPA's RACT/BACT/LAER Clearinghouse and the BACT/LAER Information System (BLIS) database. A summary of the proposed control technology is presented below.

Stack ID	Affected Facility	Pollutant	Control Technology	Control Level	Emission Level (lb/hr)
P-1	Cold Dust Control System	PM/PM_{10}	Cyclone +	50%	0.49
			Baghouse	99.9%	
P-2	Hot Dust Control System	CO	None	NA	28.59
		NOx	None	NA	6.15
		PM/PM_{10}	Dropout Box +	20%	16.50
			Baghouse	98.9%	
		VOC	None	NA	15.78
P-3	Dross Cooling Building	PM/PM_{10}	Baghouse	99.9%	0.24
		HCl	None	NA	0.02
P-9a P-9b	DHA 1 and 2 Control Systems (covers the decoating furnaces, holding furnaces, and alpur unit)	CO	Afterburner	95%	10.85
		NOx	SNCR	60%	13.38
		PM/PM_{10}	Dry Venturi + Baghouse	99.28%	1.79
		VOC	Afterburner	96.8%	2.32
		HCl	Lime Slurry Quench Reactor	98.7%	2.39
C-3 C-4 C-5 C-6	Melt Furnaces	CO	None	NA	2.73
		NOx	None	NA	2.48
		PM/PM_{10}	None	NA	3.93
		VOC	None	NA	0.27
		HCl	None	NA	0.45
C-11b	Sow Preheater #2	CO	None	NA	0.38
		NOx	None	NA	1.9
		PM/PM_{10}	None	NA	0.10
		VOC	None	NA	0.10

There are no other applicable emissions limitations under Title 401, KAR Chapters 50 to 65, or under 40 CFR 60, 61 and 63 for the affected facilities listed above.

5. Air Quality Impact Analyses

Pursuant to Regulation 401 KAR 51:017, Section 12, an application for a PSD permit shall contain an analysis of ambient air quality impacts in the area that the proposed facility will affect for each pollutant that it will have the potential to emit in significant amounts as defined in Section 22 of the same regulation. The purpose of this analysis shall be to demonstrate that allowable emissions from the proposed source will not cause or contribute to air pollution in violation of:

(i) A national ambient air quality standard in an air quality control region; or

(ii) An applicable maximum allowable increase over the baseline concentration in an area.

For pollutants for which no ambient air quality standard has been established, the analysis shall contain continuous air quality monitoring data gathered to determine if emissions of that pollutant will cause or contribute to a violation of the standard or a maximum allowable increase.

Pollutant	Significant Emissions Rate[(1)] (tpy)	Significant Net Emissions Increase (tpy)
Carbon Monoxide	100	159.69
Nitrogen Oxides	40	103.96
Sulfur Dioxide	40	0.26
PM_{10}	15	82.25
Ozone	40 (as VOC)	59.76
Fluorides	3	2.86 (as HF)
HCl	Any increase	-65.62[(2)]

[(1)] Significant emission rate given in Regulation 401 KAR 51:107, Section 22.
[(2)] Based on controlled emission rates. Uncontrolled emission change is an increase.

As indicated in the table above, the proposed modification will result in a significant net emissions increase in excess of the significant net emission rates for carbon monoxide, nitrogen oxides, particulate matter and volatile organic compounds. The source was therefore required to conduct an air quality impact analysis for each of these pollutants. No ambient air quality standard exists for volatile organic compounds, hence no modeling was performed for this pollutant.

Note on New Ambient Air Quality Standards:

Effective September 16, 1997, U.S. EPA promulgated new and revised ambient air quality standards for ozone and particulate matter. These have been summarized in the table below:

Pollutant	Existing Standard	New Standard
Ozone (O_3)	0.12 ppm (1-hour average)	0.08 ppm (8-hour average)
$PM_{2.5}$	None	15 µg/m^3 (annual average)
	None	65 µg/m^3 (24-hour average)
PM_{10}	50 µg/m^3 (annual average)	50 µg/m^3 (annual average)
	150 µg/m^3 (24-hour average)	150 µg/m^3 (24-hour average)*

*Although the standard is the same, the form has been revised to 99th percentile concentration (3-year average).

To address the applicability of these new standards to the PSD review of Alcan's proposed modifications, the Division has relied upon the following guidance provided by U.S. EPA:

i. Memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards - *Interim Guidance for Implementing Major New Source Review (NSR) Requirements for the Existing and New National Ambient Air Quality Standards for Ozone and Particulate Matter (PM)*.
ii. Memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards - *Interim Implementation of New Source Review Requirements for $PM_{2.5}$*.

Based on the guidance provided in these memorandums, the Division has reviewed the ambient air quality analysis for this facility taking into consideration the following:

i. Given the significant technical difficulties that exist with respect to $PM_{2.5}$ monitoring, emissions estimation, and modeling at this time, PM_{10} has been used as a surrogate for $PM_{2.5}$ in meeting the NSR requirements. For the purposes of this review, compliance with the PM_{10} standards has been deemed to be compliance with the $PM_{2.5}$ standards.
ii. Because the revised 24-hour PM_{10} standard is less stringent than the existing standard, the ambient air quality analysis based on the existing standard was the only analysis required. This analysis was deemed to be adequate for satisfying both existing and revised standards.
iii. In light of the fact that the new 8-hour ozone standard generally represents a more stringent standard than the 1-hour ozone standard, only one ambient air quality analysis - based on the 8-hour standard - was required.

a. Modeling Methodology

The application for the proposed modifications contains air dispersion modeling analysis for criteria pollutants (NO_x, CO, and PM_{10}) to determine the maximum ambient concentrations attributable to facility emissions for each of these pollutants for comparison with:

(1) The ambient significant levels (SIL) found in Table C-4 of the New Source Review Manual (Draft October 1990);
(2) The significant monitoring concentrations (SMC) found in 401 KAR 51:017, Section 24;
(3) The PSD increments and National Ambient Air Quality Standards (NAAQS) found in 401 KAR 51:107, Section 23 and 401 KAR 53:010, Ambient air quality standards, respectively (see also Note on new standards above).

Based on accepted U.S. EPA procedures, if the maximum predicted impacts for any pollutant

are below the SILs, then it is assumed that the proposed facility cannot cause or contribute to a violation of the PSD pollutant increments or the national ambient air quality standards (NAAQS). Therefore, no further modeling would be required for such a pollutant. The applicant may also be exempted from the ambient monitoring data requirements if the impacts are below the SMCs.

The latest version of EPA's Industrial Source Complex Short Term model (ISCST3, Version 96113) was used in the analysis. The ISCST3 model fulfills the requirements of Supplement C of the Guideline on Air Quality Models (Appendix W to 40 CFR Part 51). All parameters used in the modeling analysis for each pollutant has been found to be satisfactory and consistent with the prescribed usage for this model. Per EPA guidance, the ISCST3 model was run in sequential hourly mode using five consecutive years of meteorological data. Surface data used was based on weather observations taken at the National Weather Service (NWS) station in Lexington, Kentucky for the period from 1987 through 1991. Concurrent upper air data was based on radiosonde soundings from the station in Dayton, Ohio.

b. Modeling Results - Class II Area Impacts

The PSD requirements provide for a system of area classifications which determine the amount of growth allowed before a significant air quality deterioration is deemed to occur. Class I areas have the smallest increments and allow the least growth. The impacts of the proposed project on the nearest Class I areas will be discussed in the next section. The proposed facility will be located in a Class II area which allows moderate growth. The results of the modeled impacts on the Class II have been presented in the table below:

Pollutant	**Averaging Period**	**Calculated[(1)] Impact (µg/m^3)**	**SIL[(2)] (µg/m^3)**	**SMC[(3)] (µg/m^3)**	**PSD Class II Increments (µg/m^3)**
PM_{10}	24-hour	26.3	5	10	30
	Annual	3.2	1	NA	17
CO	1-hour	83.7	2000	NA	NA
	8-hour	34.2	500	575	NA
NOx	Annual	2.8	1	14	25

[(1)] Maximum of 1987 through 1991 modeling
[(2)]Significant Impact Level [Ref: 40 CFR 51.165 (b) (2)]
[(3)]Significant Monitoring Concentration [Ref: 401 KAR 51:017]

c. Preconstruction Monitoring
   i. CO/NOx - Since the maximum predicted impacts for CO and NOx from the Alcan facility are below their corresponding SMCs, no preconstruction ambient air quality monitoring was required for these pollutants.
   ii. PM_{10} - The maximum predicted concentration for the 24-hour averaging period is greater than the corresponding SMC, hence preconstruction monitoring was required for PM_{10}. To fulfill these requirements, Alcan has proposed using the data from the existing monitor operated by the Division for Air Quality in Richmond, Kentucky (Station 18-3500-001-F01). Data from this monitor shows that First High 24-hour average concentration for PM_{10} is 70 $\mu g/m^3$. The Division has concluded that these values are representative of the region. Based on this data, the Division has concluded that the Alcan facility will not have any significant impacts on the PM_{10} NAAQS.
   iii. Ozone - The Kentucky Division for Air Quality has determined that the ozone monitoring data from the monitoring station (Region 008, Site 339) in Somerset, Kentucky can be considered representative for ozone monitoring in the area that includes the Alcan facility. The Division has concluded that this data satisfies the pre-construction monitoring requirement for VOC. Data from this monitor shows that fourth highest maximum 8-hour average concentration for the period of 1995-1997 for ozone is 0.076 $\mu g/m^3$ and 0.078 $\mu g/m^3$ for the period of 1994-1996. Current year monitoring shows no exceedences. Based on this data, the Division has concluded that the Alcan facility will not have any significant impacts on the ozone NAAQS.

d. Full Impact Analysis
   Pollutants - Since the Alcan impacts for NOx and PM_{10} are predicted to be greater than their respective Significant Impact Levels (SILs), a full impact analysis was required for these pollutants. The predicted impact for CO was below the corresponding SIL, hence no additional modeling was required.

   Sources - All sources within Madison County were included in the full impact analysis. Additionally, all 'significant' sources in counties within a 50 kilometer radius (100 km for major NOx sources) of the Alcan facility were considered. To determine which facilities were likely to contribute to ambient air quality impacts on the NAAQS and PSD increments (and were, therefore, 'significant'), the 20D screening technique developed by the North Carolina Division of Environmental Management was used. Finally, all sources with potential emissions less than 2.5 tons per year were considered insignificant.

A table of the significant facilities for NOx and PM_{10} considered in the full impact analysis modeling is presented below.

Name	PM_{10} (tpy)	NOx (tpy)	Distance (km)
Alcan	161	191	0
Columbia Gulf	<20D	1920	74.7
East Kentucky Power (Ford)	<20D	5,200	31.0
Kentucky Utilities (Versailles)	<20D	46,000	68.3
Berea College	(66) 21*	820	3.5
East Kentucky Power (Burnside)	<20D	12,600	72
East Kentucky Power (Winchester)	<20D	10,600	36.5
UK Service Building	<20D	1,880	51.5
AFG Industries	(250) 113.23*	400	10.9
Ky Utilities (Burgin)	<20D	16,400	71.9
Tokico (USA), Inc.	(22) 18*	16	0.47
PPG Industries, Inc.	<20D	21	11.3
Motor Wheel Corp	<20D	<1	2.0
American Tape	<20D	(195) 22*	11.3
KI (USA) Corporation	<20D	7	1.3

* Corrected from submission. Several errors were discovered in reviewing the emission rates from the model. At time of original model, the applicant did not have final numbers for AFG's PSD permit. Additionally, information in the KYEIS was inaccurate for the minor source, Tokico, Inc and American Tape.

CTSCREEN - Additional modeling was also performed with CTSCREEN. The local terrain in this area is primarily flat or rolling, but there are several large hills within the significant impact area of the facility. These nearest of these hills is slightly taller than the shortest stacks at Alcan. Several larger more distant features were also modeled. ISCST3 was also run at these locations as a comparison to the CTSCREEN values.

Pollutant	Averaging Period		Calculated* Impact (µg/m^3) ISCST3*	Calculated* Impact (µg/m^3) CTSCREEN
PM_{10}	Annual	Alcan Only	0.47	0.89
		All	1.35	N/A
	24-hour	Alcan Only	5.79	4.43
		All	6.47	N/A
NOx	Annual	Alcan Only	0.62	0.79
		All Facilities	3.85	N/A

CTSCREEN predicts that both NOx and PM_{10} impacts are below the 1 µg/m^3 elevated threshold value identified in the New Source Review Workshop Manual. The CTSCREEN predicts a PM_{10} impact (24-hour average) of 4.43 µg/m^3 from Alcan alone. Additional modeling with ISCST3 indicates a 6.47 µg/m^3 (24-hour average) from all sources at these location. The background concentration for this area is 70 µg/m^3, therefore both the NAAQS standard and the increment are being met at this elevated terrain.

e. Modeling Results - Increment consumption.
A PSD increment is the maximum allowable increase that is allowed to occur above a baseline concentration for a pollutant. The minor source baseline for NOx was established on November 16, 1992 by Eastern Kentucky Power. The minor source baseline for PM_{10} was established on April 28, 1997 with the submittal of a complete application by AFG Industries, Incorporated. The results of the increment consumption analysis are shown below:

Pollutant	Averaging Period	Increment Consumed (µg/m^3)	PSD Class II Increments (µg/m^3)
PM_{10}	24-hour	26	30
	Annual	3.2	17
NOx	Annual	23	25

i. <u>NOx</u> - In lieu of performing a increment consumption modeling for NOx , the permittee performed a total area modeling. The impact from all sources of NOx is still below the allowable increment consumption.

ii. <u>PM_{10}</u> - The proposed modifications at Alcan are the only significant increases that have occurred in Madison County since submittal of the AFG Industries, Incorporated PSD application. Therefore, the increment consumption impact is the same as Alcan's stand-alone impact. Alcan's impacts are below the increment consumptions for both the 24-hour and the annual levels.
The increment consumption analysis shows that the proposed modifications are within the available NOx and PM_{10} increments.

f. Full Impact Analysis:

Pollutant	Period	Background Concentration ($\mu g/m^{3)}$	Impact All Sources ($\mu g/m^3$)	Predicted Ambient Impact ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NOx	Annual	32.5	23	55	100
PM_{10}	Annual	29.0	19	48	50
	24 hour	68.0	120	168*	150

* See discussion below on modeled violations.

The model does show predicted exceedences of the 24-hour PM_{10} standard. The applicant performed a spatial analysis demonstrating that PM_{10} emissions from Alcan are below the significant impact level (SIL) in all the modeled violations. In addition, the Division has carefully reviewed the modeled violations, and determined that they occurred on the Tokico, Inc. property line. The Division believes that modeled violations are an artifact of low stack height and low velocity, in conjunction with incomplete data obtained from an area source. The Division is requesting clarification from Tokico, Inc, and will continue to investigate the predicted exceedences.

g. Modeling Results - Class I Area Impacts
The nearest Class 1 area is Mammoth Cave National Park located 156 kilometers south-west from the site, beyond the area of concern for PSD modeling. Thus, no modeling was performed to determine the impact on Class 1 areas.

g. Modeling Results - Air Toxics Analysis
The proposed construction will emit air toxics pollutants regulated under Kentucky State Regulation 401 KAR 63:022, New or modified sources emitting toxic air pollutants. Four of these (Lead, Titanium, Hydrogen Chloride and Aluminum) exceed their adjusted significance levels. Modeling was performed to show that the maximum predicted impacts of each of these pollutants are below their corresponding threshold ambient levels (TAL).

Pollutant	Averaging Time	TAL ($\mu g/m^3$)	Modeled Impact ($\mu g/m^3$)
Aluminum Oxide	8-hour	238.1	68.0
HCl	1-hour	166.7	21.9
Lead	8-hour	3.57	0.02
Titanium	8-hour	119.5	0.06

The tabulated results above show that the maximum predicted impact for each air toxic is below its TAL value. Therefore, Regulation 401 KAR 63:022 does not apply to the Alcan facility.

6. Additional Impact Analyses
   a. *Construction and related emissions* - Limited temporary emissions are expected due to facility modification. These may include fugitive dust, VOC, SO_2, NOx, CO and miscellaneous air toxics. These emission may result from structural (building, stacks) modifications, welding, painting, roofing, miscellaneous clean-up activities. Emissions from these small but complex activities cannot be adequately quantified.
   b. *Growth Analysis* - The facility is located in Madison County, within the northern city limits of Berea, approximately two miles northwest of downtown. The facility currently employs about 108 employees with an estimated level of 117 after completion of the proposed modifications. Hence residential growth is expected to be minimal. Furthermore, the products generated at this facility will be shipped to locations outside of the Berea area. Hence, no commercial/industrial development is expected as direct result of the proposed modifications.
   c. *Soils and Vegetation Impacts Analysis* - The maximum predicted ambient concentrations due to the existing and proposed Alcan facility sources are below the ambient air quality standards and are not expected to have any significant impacts on soil and vegetation in the area.
   d. *Visibility Impairment Analysis* - The nearest Class I area (Mammoth Cave National Park) is located approximately 156 kilometers west-southwest of the Alcan facility. Impacts on the visibility in this Class I area are expected to negligible.

7. PSD Conclusion

   In conclusion, considering the information presented in the PSD application, the Division has made a determination to grant a permit for the proposed modifications since this review has demonstrated that all applicable requirements under PSD have been satisfied. The Division has prepared a draft permit that contains sufficient enforceable monitoring, recordkeeping and reporting conditions to determine compliance with the applicable requirements and to ensure plant operation in a manner consistent with that indicated in the permit application.

D. COMPLIANCE DEMONSTRATION RATIONALE:

This section discusses the rationale behind the compliance demonstration methodologies

proposed in the draft permit. Please see the attached permit for details.

1. Cold Dust Control (Stack P-1):
   Control Technology: Baghouse
   Pollutants (Primary): PM/PM_{10}
   Pollutants (Other): None
   Associated Emission Units: Shredder, Conveyor, Elevator, Hopper, Weigh Belt, Fines Separator
   Indicators Monitored and Rationale:
   a. Differential pressure drop (Baghouse) - Operation of the baghouse within the pressure drop range specified is indicative of proper performance of the device.
   b. Scrap throughput rate (associated emission units) - Emissions are a function of the scrap throughput rate. Emissions will be correlated to the scrap throughput rate with the initial compliance test. The emission factor will assume a certain level of control efficiency for the cyclone and baghouse. The parametric monitoring required for the devices will be used to ensure an optimum level of performance making this a reasonable assumption.
   c. Visible emissions are not a reliable or accurate indicator of the performance of the particulate control devices on the Cold Dust Control System nor do these units have a history of opacity problems. Hence no compliance demonstration is necessary for visible emissions during normal operation. In the event of a malfunction of any particulate control device, the permittee is required to monitor visible emissions if any of the emission units generating particulate emissions are still in operation.

2. Hot Dust Control System (Stack P-2):
   Control Technology: Baghouse
   Pollutants (Primary): PM/PM_{10}
   Pollutants (Other): CO, NOx, VOC, HF
   Associated Emission Units: Hot Shred Conveyor, Melt Furnace Sidewalls and Hoods, Hold Furnace Hoods, Dross Pan hood, Alpur Hood
   Indicators Monitored and Rationale:
   a. Differential pressure drop (Baghouse) - Operation of the baghouse within the pressure drop range specified is indicative of proper performance of the device.
   b. Molten dross throughput rate (associated emission units) - Emissions are a function of the molten dross throughput. Emissions will be correlated to the molten dross throughput rate with the initial compliance test. The emission factor will assume a certain level of control efficiency for the cyclone and baghouse. The parametric monitoring required for the devices will be used ensure an optimum level of performance making this a reasonable assumption.
   c. Visible emissions are not a reliable or accurate indicator of the performance of the particulate control devices on the Hot Dust Control System nor do these units have a history of opacity problems. Hence no compliance demonstration is necessary for visible emissions during normal operation. In the event of a malfunction of any particulate control device, the permittee is required to monitor visible emissions if any of the emission units generating particulate emissions are still in operation.

3. Dross Building (Stack P-3):
   Control Technology: Baghouse

Pollutants (Primary): PM/PM_{10}
Pollutants (Other): HCl
Associated Emission Units: Dross Cooling Building
Indicators Monitored and Rationale:

a. Differential pressure drop (Baghouse) - Although the permittee is required to monitor the pressure drop across the baghouse, no pressure drop range has been specified given the very low level of particulate emissions (0.24 lbs/hr). In this case, it is merely sufficient for the permittee to show that the baghouse is in operation and record any incidents when it is not.
b. Dross generation rate (associated emission units) - Emissions are a function of the dross generation rate. Emissions will be correlated to the dross generation rate with the emission factor observed during the last stack test. The emission factor will assume a certain level of control efficiency for the baghouse. The parametric monitoring required for the baghouse will ensure an optimum level of performance making this a reasonable assumption.
c. Visible emissions are not a reliable or accurate indicator of the performance of the baghouse on the Dross Cooling Building nor does this unit have a history of opacity problems. Hence no compliance demonstration is necessary for visible emissions during normal operation. In the event of a malfunction of the baghouse, the permittee is required to monitor visible emissions if Dross Cooling Operations are still in progress.

4. DHA Control Systems 1 & 2 (Stacks P-9a, P-9b):
Control Technology: Afterburner(VOC, CO)
DeNOx System (NOx)
Quench Reactor (HCl)
Dry Venturi + Baghouse (PM/PM_{10})
Pollutants (Primary): VOC, CO, NOx, PM/PM_{10}, HCl
Pollutants (Other): None
Associated Emission Units: Decoaters, Hold Furnaces, Alpur Filter
Indicators Monitored and Rationale:

a. Scrap throughput rate - Emissions are a function of the scrap throughput rate. Emissions will be correlated to the scrap throughput rate with the initial compliance test.
b. Afterburner firebox temperature - The afterburner firebox temperature is an indicator of the efficiency of destruction of CO and VOC and is a factor in the amount of NOx being produced.
c. NOxOUT® reagent injection rate - Proper SNCR operation is dependent upon the NOx to reagent ratio.
d. Lime slurry injection rate - The lime slurry injection rate is an accurate predictor of the HCl control efficiency.
e. Differential pressure drop (baghouse) - Operation of the baghouse within the pressure drop specified is indicative of proper performance of the device.

5. Melt Furnaces 1A, 1B, 2A, 2B (Stacks C-3, C-4, C-5, C-6):
   Control Technology: None
   Pollutants (Primary): VOC, CO, NOx, PM/PM_{10}, HCl
   Pollutants (Other): None
   Associated Emission Units: Melt Furnaces
   Indicators Monitored and Rationale:
   a. Scrap throughput rate - Emissions are a function of the scrap throughput rate. Emissions will be correlated to the scrap throughput rate with the initial compliance test.
   b. Natural gas is the only fuel used at the Melt Furnaces, so visible emissions are not expected to occur nor do these units have a history of opacity problems. Hence no compliance demonstration is necessary for visible emissions as long as natural gas is the only fuel burned.

6. Sow Preheaters #1, #2 (Stacks C-11a, C-11b):
   Control Technology: None
   Pollutants (Primary): VOC, CO, NOx, PM/PM_{10}, HCl
   Pollutants (Other): None
   Associated Emission Units: Sow Preheaters
   Indicators Monitored and Rationale:
   a. Natural gas usage rate - Emissions are a function of the natural gas used. Emissions will be correlated to the natural gas usage rate with AP-42 emission factors.
   b. Natural gas is the only fuel used at the Sow Preheaters, so visible emissions are not expected to occur nor do these units have a history of opacity problems. Hence no compliance demonstration is necessary for visible emissions as long as natural gas is the only fuel burned.